



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1050; Project Identifier AD-2021-01257-T; Amendment 39-22316; AD 2023-02-09]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2007-10-04, which applied to all McDonnell Douglas Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), and MD-88 airplanes. AD 2007-10-04 required repetitive inspections to detect cracks in the horizontal stabilizer, and related investigative and corrective actions if necessary. Since the FAA issued AD 2007-10-04, it has been determined that certain compliance times and repetitive intervals must be reduced to address the unsafe condition. This AD continues to require the actions specified in AD 2007-10-04 with revised compliance times for certain actions. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1050; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For service information incorporated by reference in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; website myboeingfleet.com.

- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1050.

FOR FURTHER INFORMATION CONTACT: Manuel Hernandez, Aerospace Engineer, Airframe Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5256; email: Manuel.F.Hernandez@faa.gov.

SUPPLEMENTARY INFORMATION:**Background**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2007-10-04, Amendment 39-15045 (72 FR 25960, May 8, 2007) (AD 2007-10-04). AD 2007-10-04 applied to all McDonnell Douglas Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), and MD-88

airplanes. The NPRM published in the *Federal Register* on September 15, 2022 (87 FR 56593). The NPRM was prompted by the determination that certain compliance times and repetitive intervals must be reduced for the high frequency eddy current (HFEC) surface and open hole inspections of the rear spar upper caps. The FAA received a report from Boeing of a crack found along fasteners in the upper rear spar that was longer than two inches during an inspection of the horizontal rear spar upper cap on a Model DC-9-82 (MD-82) airplane with 69,799 flight hours and 38,520 flight cycles. The crack was discovered prior to the compliance time intervals for the repetitive inspections required by AD 2007-10-04; it was determined that certain compliance times do not provide at least two opportunities to reliably detect dual origin cracks before they reach critical length.

In addition, since the FAA issued AD 2007-10-04, the legal name of the manufacturer has been changed from McDonnell Douglas Corporation to The Boeing Company on the most recent type certificate data sheet for the affected airplane models.

In the NPRM, the FAA proposed to continue to require the actions specified in AD 2007-10-04, with revised compliance times for certain actions. The FAA is issuing this AD to detect and correct cracks in the upper and lower aft skin panels and rear spar upper caps, which, if not corrected, could lead to the loss of overall structural integrity of the horizontal stabilizer.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from one commenter, Boeing. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Revise “Related Service Information under 1 CFR Part 51”

Boeing requested that the FAA revise the description of the service information in the “Related Service Information under 1 CFR Part 51” paragraph in the NPRM. The

paragraph in the NPRM reads as follows: “Corrective actions include stop drilling the end of the crack, trimming out the crack and installing filler, installing a horizontal stabilizer upper and lower aft skin panel splice, replacing the horizontal stabilizer upper and lower aft skin panel, installing bushings and cold working holes, removing the crack and performing a repair, replacing the horizontal stabilizer rear spar upper cap splice, and replacing the splice repair with a new horizontal stabilizer rear spar upper cap.” Boeing suggested the FAA revise the text to read: “Corrective actions to the horizontal stabilizer skin panel upper and lower aft skin panel include options for (1) stop drilling the end of the crack or trimming out the crack, and then doing a skin splice repair or replacing the skin at the given compliance time, (2) installing a skin panel splice, or (3) replacing the skin panel. Corrective actions to the horizontal stabilizer rear spar upper cap include options for (1) enlarging the hole to remove the crack, (2) performing a cap splice repair, (3) performing a cap splice repair and cold-working certain holes, (4) performing a cap replacement, or (5) performing a cap replacement and cold-working certain holes.” Boeing reasoned that the revised text would distinguish between corrective actions specifically for skins and those for spar cap, per the Boeing Service Bulletin, and would also clarify that replacing a temporarily repaired structure is applicable only to the skin panel and not the spar cap; a repaired spar cap is inspected repetitively.

The FAA agrees and revised the “Related Service Information under 1 CFR Part 51” paragraph in the final rule as requested.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as

proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information under 1 CFR Part 51

The FAA reviewed Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021. This service information specifies procedures for repetitive eddy current inspections (HFEC or low frequency eddy current inspections, as applicable) of the horizontal stabilizer; and applicable corrective actions. Corrective actions to the horizontal stabilizer skin panel upper and lower aft skin panel include options for (1) stop drilling the end of the crack or trimming out the crack, and then doing a skin splice repair or replacing the skin at the given compliance time, (2) installing a skin panel splice, or (3) replacing the skin panel. Corrective actions to the horizontal stabilizer rear spar upper cap include options for (1) enlarging the hole to remove the crack, (2) performing a cap splice repair, (3) performing a cap splice repair and cold-working certain holes, (4) performing a cap replacement, or (5) performing a cap replacement and cold-working certain holes.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 22 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs				
Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspections (retained actions from AD 2007-10-04)	8 work-hours X \$85 per hour = \$680, per inspection cycle	\$0	\$680 per inspection cycle	\$14,960 per inspection cycle

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspections (new proposed action)	Up to 20 work-hours X \$85 per hour = \$1,700 per inspection cycle	\$0	Up to \$1,700 per inspection cycle	Up to \$37,400 per inspection cycle

The FAA estimates the following costs to do any necessary corrective actions (e.g., repairs, replacements, installation) that would be required based on the results of the inspection. The FAA has no way of determining the number of aircraft that might need these corrective actions:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Repair, replacement and installation of upper or lower aft skin panel or splice	Up to 656 work-hours X \$85 per hour = \$55,760	Up to \$128,892	Up to \$184,652
Stop drill repair	4 work-hours X \$85 per hour = \$340	\$0	\$340
Trim out	8 work-hours X \$85 per hour = \$680	\$0	\$680
Install bushings and cold work	26 work-hours X \$85 per hour = \$2,210	\$9,827	\$12,037
Crack removal and repair	6 work-hours X \$85 per hour = \$510	\$2,033	\$2,543
Replace rear spar upper cap	368 work-hours X \$85 per hour = \$31,280	\$36,402	\$67,682

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

- a. Removing Airworthiness Directive (AD) 2007-10-04, Amendment 39-15045 (72 FR 25960, May 8, 2007); and
- b. Adding the following new AD:

2023-02-09 The Boeing Company: Amendment 39-22316; Docket No. FAA-2022-1050; Project Identifier AD-2021-01257-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2007-10-04, Amendment 39-15045 (72 FR 25960, May 8, 2007) (AD 2007-10-04).

(c) Applicability

This AD applies to all The Boeing Company Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), and MD-88 airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 55, Stabilizers.

(e) Unsafe Condition

This AD was prompted by reports of cracks found in the horizontal stabilizer in the upper and lower aft skin panels at the aft inboard corner at station XH = 8.2 and in the rear spar upper caps adjacent to the aft skin panel at station XH = 10.0; and by a determination that certain compliance times and inspection intervals must be reduced. The FAA is issuing this AD to detect and correct cracks in the upper and lower aft skin

panels and rear spar upper caps, which, if not corrected, could lead to the loss of overall structural integrity of the horizontal stabilizer.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Repetitive Inspections and Corrective Actions

Except as specified in paragraph (h) of this AD: At the applicable times specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021, do an eddy current inspection to detect any cracking in the horizontal stabilizer and do all applicable repetitive inspections and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021. Do all applicable repetitive inspections and corrective actions at the times specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021.

(h) Exceptions to Service Information Specifications

(1) Where the Compliance Time columns of the tables in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021, use the phrase “the original issue date of this service bulletin,” this AD requires using May 23, 2007 (the effective date of AD 2007-10-04).

(2) Where the Compliance Time columns of the tables in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021, use the phrase “the Revision 2 date of this service bulletin,” this AD requires using “the effective date of this AD.”

(i) Credit for Previous Actions

(1) This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin MD80-55A065, dated April 25, 2007. This service information

was incorporated by reference in AD 2007-10-04, Amendment 39-15045 (72 FR 25960, May 8, 2007).

(2) This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin MD80-55A065, Revision 1, dated September 23, 2008. This service information is not incorporated by reference in this AD.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k)(1) of this AD. Information may be emailed to:

9-ANM-LAACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by The Boeing Company Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles ACO Branch, FAA, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 2007-10-04 are approved as AMOCs for the corresponding provisions of Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021, that are required by paragraph (g) of this AD, except the

AMOCs specified in paragraphs (j)(4)(i) through (iii) of this AD are not approved as AMOCs for this AD.

(i) FAA Letter Number 120L-14-226a, dated January 29, 2015.

(ii) FAA Letter Number 120L-15-384b, dated November 2, 2015.

(iii) FAA Letter Number 120L-10-345, dated August 3, 2010.

(k) Related Information

(1) For more information about this AD, contact Manuel Hernandez, Aerospace Engineer, Airframe Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5256; email: Manuel.F.Hernandez@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (l)(3) and (4) of this AD.

(l) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Alert Service Bulletin MD80-55A065, Revision 2, dated October 11, 2021.

(ii) [Reserved]

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; website myboeingfleet.com.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on January 24, 2023.

Christina Underwood, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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